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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* PETER ROBERT FOLEY and  
HOWARD DAVID HUTTON

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Appeal 2008-5694  
Application 09/909,288  
Technology Center 1700

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Decided:<sup>1</sup> January 30, 2009

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Before BRADLEY R. GARRIS, MICHAEL P. COLAIANNI, and  
JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

ROBERTSON, *Administrative Patent Judge*.

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

## DECISION ON APPEAL

### STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) (2002) from the Examiner's rejection of claims 57, 58, and 63.<sup>2</sup> (Examiner's Answer entered November 28, 2007, hereinafter "Ans."). We have jurisdiction pursuant to 35 U.S.C. § 6(b) (2002).

The Appeal was heard on January 15, 2009.

We AFFIRM.

### THE INVENTION

Appellants' claimed invention is directed to a hard surface cleaning product comprising a hard surface cleaning composition and a spray dispenser. Appellants state that the hard surface cleaning composition is useful for removing cooked-, baked-, or burnt-on soils on a vertical or inclined surface. (Spec. 3, ll. 17-24).

Claims 57 and 63, reproduced below, are representative of the subject matter on appeal.

57. A hard surface cleaning product comprising a hard surface cleaning composition and a spray dispenser, wherein spray droplets from the spray dispenser have an average equivalent geometric diameter from about 3  $\mu\text{m}$  to about 10  $\mu\text{m}$ , as measured using a TSI Aerosizer; wherein the cleaning composition comprises an anionic surfactant, an organic solvent system, a thickening system comprising a xanthan gum and a synthetic clay thickening agent having an average platelet size of maximum dimension less than about 100 nm and a layer structure which in dispersion in water, is in the form of disc-shaped crystals of about 1 nm thick and about 25 nm diameter,

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<sup>2</sup> Claims 1-29, 35-56, 59-62, and 64-66 have been canceled. Claims 30-35 have been withdrawn from consideration. (Appeal Brief filed September 4, 2007, hereinafter "Br.," 1).

wherein the organic solvent system comprises at least one organoamine and a glycol ether solvent, wherein the glycol ether solvent is selected from the group consisting of ethylene glycol monobutyl ether, diethylene glycol monobutyl ether, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, diethylene glycol monomethyl ether, diethylene glycol monoethyl ether, propylene glycol monobutyl ether, dipropylene glycol monobutyl ether, ethylene glycol phenyl ether, and mixtures thereof; a solvent odor masking perfume comprising an ionone; wherein the composition has a pH, as measured in a 10% solution in distilled water, from about 11.5 to about 14; and wherein said composition has shear thinning properties.

63. The product according to Claim 57, wherein the glycol ether solvent is a mixture of diethylene glycol monobutyl ether and propylene glycol butyl ether.

#### THE REJECTIONS

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Ishimatsu	JP 60-141800	July 26, 1985 <sup>3</sup>
Culshaw	US 5,202,050	Apr. 13, 1993
Noritake	JP 8-151597A	June 11, 1996 <sup>4</sup>
Kasturi	WO 99/254539	May 20, 1999
Weibel	US 5,821,214	Oct. 13, 1998
Trinh	US 6,194,362 B1	Feb. 27, 2001 (Feb. 18, 1998)

The Examiner rejected claims 57 and 58 under 35 U.S.C. § 103(a) as being unpatentable over Ishimatsu in view of Culshaw, Noritake, Weibel, and Trinh. The Examiner rejected claim 63 as being unpatentable over

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<sup>3</sup> All citations to Ishimatsu are to the English translation of record.

<sup>4</sup> All citations to Noritake are to the English translation of record.

Ishimatsu in view of Culshaw, Noritake, Weibel, and Trinh, and further in view of Kasturi.

In rejecting claim 57, the Examiner found that Ishimatsu describes a hard surface cleaning composition including swellable clay materials that may be formulated as a spray-type product, but that Ishimatsu does not specifically teach a composition that comprises xanthan gum in addition to synthetic clay. (Ans. 4). The Examiner found that Culshaw teaches hard surface cleaning compositions with thickeners that include xanthan gum. (Ans. 4-5). The Examiner determined that it would have been obvious to use xanthan gum in Ishimatsu's cleaning composition "because Culshaw et al teach the equivalence of smectite clay to xanthan gum in a similar cleaning composition." (Ans. 6).

The Examiner found that while Ishimatsu teaches solvents including diethylene glycol monobutyl ether, none of the references applied against claim 57 teach propylene glycol butyl ether as recited in claim 63. (Ans. 4 and 9). The Examiner found that Kasturi teaches hard surface cleaning compositions including propylene glycol butyl ether solvents. (Ans. 9). The Examiner determined that it would have been obvious to use propylene glycol butyl ether in Ishimatsu's cleaning compositions because Kasturi "teaches the equivalence of propylene glycol butyl ether to diethylene glycol monobutyl ether in a similar cleaning composition, and further, [Ishimatsu] teaches the use of diethylene glycol monobutyl ether." (Ans. 9).

Appellants argue that the Examiner improperly relies on the presumption that components disclosed in a Markush group are equivalent to support the rejections under 35 U.S.C. § 103(a). (Br. 4-6 and 8-11).

Appellants additionally argue that the references cited by the Examiner are non-analogous art. (Br. 7, 8, and 11-13).

## ISSUES

The issues on appeal are:

Have Appellants shown that the Examiner erred in determining that the cited prior art recognizes that smectite clays and xanthan gum are equivalent thickeners in hard surface cleaning compositions?

Have Appellants shown that the Examiner erred in determining that the cited prior art recognizes that propylene glycol butyl ether and diethylene glycol monobutyl ether are equivalent solvents in hard surface cleaning compositions?

Have Appellants shown that the Examiner erred in determining that the cited prior art references are analogous art?

## FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

1. Ishimatsu describes hard surface cleaning compositions for removing organic materials, which may be used in the form of a spray product. (P. 3 and 6).
2. Ishimatsu discloses that the composition includes swellable clay materials and diethylene or propylene glycol ether solvents, which may be used in mixtures of two or more. (P. 4).
3. Culshaw describes hard surface cleaning compositions including thickeners and states that “[c]ommon thickeners such as

polyacrylates, xanthan gums, carboxymethyl celluloses, swellable smectite clays, and the like, can be used herein.” (Col. 1, ll. 13-16; col. 6, ll. 65-68).

4. In rejecting claim 57, the Examiner states:

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use xanthan gum in the cleaning composition taught by [Ishimatsu], with a reasonable expectation of success, because Culshaw et al teach the equivalence of smectite clays to xanthan gum in a similar cleaning composition and further, [Ishimatsu] teaches the use of thickening agents such as swellable clay minerals including smectite-type clay minerals.  
(Ans. 6, 3<sup>rd</sup> full paragraph).

5. Weibel describes hard surface cleaning compositions including smectite-type clays including those sold under the trademark Laponite. (Col. 1, ll. 5-10; col. 5, ll. 27-52).
6. Noritake describes hard surface cleaning compositions including synthetic smectite clays having particle sizes between 10 and 5000 nm. (¶¶ [0001], [0011], and [0012]).
7. Trinh describes hard surface cleaning compositions including ionone perfume. (Col. 1, ll. 10-18; col. 6, l. 39).
8. Kasturi describes hard surface cleaning compositions including solvents and states:

The solvents can also be selected from the group of compounds comprising ether derivatives of mono-, di- and tri-ethylene glycol, propylene glycol, butylene glycol ethers and mixtures thereof. . . . Examples of preferred solvents include, for example, mono-ethylene glycol n-hexyl ether, mono-propylene glycol n-butyl ether, and tri-propylene glycol methyl ether.  
(p. 20, 4<sup>th</sup> full paragraph.)

9. In rejecting claim 63, the Examiner states:

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use propylene glycol butyl ether in the composition taught by [Ishimatsu], with a reasonable expectation of success, because [Kasturi] teaches the equivalence of propylene glycol butyl ether to diethylene glycol monobutyl ether in a similar cleaning composition and further, [Ishimatsu] teaches the use of diethylene glycol monobutyl ether.

(Ans. 9, 3<sup>rd</sup> full paragraph).

10. In response to the Examiner's non-final rejection of August 18, 2006, Appellants stated that "Applicants submit that the court in either [sic] of [*In re Hacklander*, 328 F.2d 937 (CCPA 1964) or *In re Dillon*, 919 F.2d 688 (Fed. Cir. 1990)] intended for an expectation of equivalence to merely be created by a recitation in a Markush group." (Reply to Office Action of August 18, 2006 dated February 20, 2007, p. 6, 3<sup>rd</sup> full paragraph).

## PRINCIPLES OF LAW

The practice of describing a class of chemical compounds in terms of a structural formula wherein the substituents thereof are defined as "a member selected from the group consisting of A, B, C, D \* \* \*" was sanctioned by implication in *Ex parte Markush*, 1925 C.D. 126, 340 O.G. 839, the first decision to consider the propriety of claims so expressed hence, the name "Markush group."

*In re Driscoll*, 562 F.2d 1245, 1249 (CCPA 1977).

What constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case. *Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be*



*considered in a vacuum.* \* \* \* An important factor is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was. . . (Emphasis ours.)

*In re Ruff*, 256 F.2d 590, 598 (CCPA 1958) (quoting *Graver Tank & Mfg. Co., Inc. v. Linde Air Products Co.*, 339 US 605, 609 (1950)).

Determining whether a reference is non-analogous art is a two-fold inquiry. First, we must decide if the reference is within the field of the inventor's endeavor; if it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. *See In re GPAC Inc.*, 57 F.3d 1573, 1577 (Fed. Cir. 1995); *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979).

## ANALYSIS

We confine our discussion to appealed claims 57 and 63, which contain claim limitations representative of the arguments made by Appellants for each ground of rejection pursuant to 37 C.F.R. § 41.37(c)(1)(vii) (2006).<sup>5</sup> In addition, because Appellants rely on similar if not the same arguments for each ground of rejection, we will address both grounds of rejection together.

A Markush group is an alternative claim expression and is defined by the words “selected from the group consisting of ...and....” *See Driscoll, supra*. Neither Culshaw nor Kasturi define a Markush group with respect to

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<sup>5</sup> Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37 (c)(1) (vii) (2004).

thickeners or solvents as neither reference employs the above language in describing these components. (FF 3 and 8). The contentions of Appellants and the Examiner regarding any presumptions created by a Markush group are not relevant to the present appeal. Indeed, these contentions appear to be based on Appellants' incorrect characterization during prosecution that the prior art disclosed Markush groups. (*See* FF 10).

Further, the Examiner does not assert that the prior art discloses Markush groups in the body of the rejection. (FF 4 and 9). Rather, the Examiner found that Culshaw recognizes smectite clays and xanthan gums as equivalent thickeners in hard surface cleaning compositions. (FF 3 and 4). Regarding claim 63, the Examiner found that Kasturi and Ishimatsu recognize the equivalence of propylene glycol butyl ether to diethylene glycol monobutyl ether as solvents in hard surface cleaning compositions. (FF 2, 8, and 9). Thus, the Examiner relies on the art-recognized equivalence of the thickeners and solvents as disclosed in Culshaw and Kasturi, not on Appellants' disclosure. (*See* Ans. Paragraph bridging 10 and 11: "The fact that the prior art lists these materials as suitable for the same use and purpose means that the prior art recognizes that these materials are functional equivalents.") Appellants have not provided any persuasive evidence to overcome the Examiner's findings or to support their contention that more discussion in the prior art reference is required to establish equivalency. (Br. 5 and 6). *See Ruff, supra*.

Appellants' arguments that the references do not meet the definition of analogous art are also not persuasive. The Examiner determined that all of the cited prior art references are directed to hard surface cleaners. (*See* Ans. 12 and 13; FF 1, 2, and 5-8). Appellants have failed to provide any

persuasive evidence that one of ordinary skill in the art would not have considered the cited prior art to be from the same field of endeavor.

### CONCLUSION

Appellants have failed to demonstrate that the Examiner erred in determining that the prior art recognizes that smectite clays and xanthan gum are equivalent thickeners in hard surface cleaning compositions.

Appellants have failed to demonstrate that the Examiner erred in determining that the prior art recognizes that propylene glycol butyl ether and diethylene glycol monobutyl ether are equivalent solvents in hard surface cleaning compositions.

Appellants failed to demonstrate that the Examiner erred in determining that the cited references are analogous art.

### ORDER

We affirm the Examiner's decision rejecting claims 57 and 58 under 35 U.S.C. § 103(a) as being unpatentable over Ishimatsu in view of Culshaw, Noritake, Weibel, and Trinh.

We affirm the Examiner's decision rejecting claim 63 as being unpatentable over Ishimatsu in view of Culshaw, Noritake, Weibel, and Trinh, and further in view of Kasturi.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. §1.136(a)(1)(iv).

AFFIRMED

Appeal 2008-5694  
Application 09/909,288

PL initial:  
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